

The Stresses in a Ponderable Medium Forming an  
Infinite Half-Plane Weakened by Two Circular  
Holes, by D. I. Sherman,  
~~СССР~~, per, Prikladnaya Matematika i Mekhanika,  
Vol 15, 1951, pp 297-316.  
NLL RTS 3029

Russian

Sci-Mech  
Nov 67

345,289

62-34408

Chetaev, N. G.  
ON THE CHOICE OF THE PARAMETERS OF STABLE  
MECHANICAL SYSTEMS (O Vybere Parametrov  
Ustoichivoi Mekhanicheskoi Sistemy) tr. by William G.  
Vogt. 7 Feb 62, 4p. 1 ref. Control Theory Group Tech-  
nical rept. no. 12.  
Order from Dept. of Electrical Engineering, U. of  
Pittsburgh, Pittsburgh 13, Pa.

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1951, v. 15, p. 371-372.

I. Chetaev, N. G.  
II. UP CTG/TR-12  
III. Pittsburgh U. School of  
Engineering, Pa.

DESCRIPTORS: \*Equation of motion, Differential equa-  
tions, Stability, \*Mechanics, Control, Perturbation  
theory.

(Mathematics, TT, v. 9, no. 7)

Office of Technical Services

Prik Matematik Mekhaniki

1951

Vol XV, no. 4, pp. 409-  
432

Equations of Motion of a Viscous Gas -  
J. V. Vallander

Proj. 11236

A. 4151

WT-9.20 (wak) SP

Axisymmetric Elastic/Plastic Problem for Plate,  
Weakened by a Circular cut, by K. N. Shevchenko  
RUSSIAN, per, Prikladnaya Matematika i Mekhanika,  
Vol 15, 1951, pp 519-520.  
\*AEC LB/G/2482

NLL Ref' 5828.4F (12225)

Sci/Materials  
Nov 66

Stresses in a Plane, Ponderable Medium With Two  
Uniform, Symmetrically Placed ~~Holes~~ Circular  
Holes, by D. I. Sherman, 13 pp.

RUSSIAN, per, Prik Matemat i Mekh, Vol XV, No 6,  
1951, pp 751-761.

26,765 DEER LU M. 1953  
Sci Mu Lib Tr 55/1325  
BAL N. 471

Scientific - Physics

Sep 55 CTS

Some General Methods of Solving Problems in  
The Theory of Plasticity, by I. A. Birger,  
8 p.

RUSSIAN, per, Priklad Mat i Mekh, 1951, Vol XV,  
pp 765-770.

AT&T-77L35R

Sci  
Apr 60  
Vol III, No 2

113579

Prikladnaya Matematika i Mekhanika /Applied Mathematics  
and Mechanics/ Volume XV, No 6 (Nov/Dec 1951), pages  
771-2. FDD copy.

"Approximate Integration of Differential Equations with  
Lagging Argument"

author: L. E. El'sgol'ts (Moscow)

11640 ST-256 SR 26 Mar 52

Barenblatt, G.I.

SOME IRREGULAR MOTIONS OF A LIQUID AND A  
GAS IN A POROUS MEDIUM. 17 p. 4 refs. MTWL:627.  
Order from OTS or ETC \$1.85 61-17229

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1952, v. 16, no. 1, p. 67-78.

DESCRIPTORS: \*Porous materials, Fluid flow, Gas  
flow, \*Aerodynamics, \*Hydrodynamics, Theory.

61-17229

I. Barenblatt, G.I.  
II. MTWL-627  
III. Stichting Mocilijk  
Toegankelijke Wetenschap-  
pelijke Literatuur

Office of Technical Services

The Impact on a Lamina With Discontinuous  
Streamline Flow, by M. I. Gurevich, 8 p.

RUSIAN, Sov. Phys. Mat. i Nauk, 1952, Vol. III,  
No. 1, p. 110.

CIA 59-15414

Sci  
Jan 60  
Vol 2, No 5

104,399

61-22199

Gurevich, M. I.  
BREAKAWAY FLOW PAST A PLATE SUBJECTED TO  
IMPACT. [1951] 6p. 4 rebs.  
Order from RIS \$5.00 RIS S-2104

Trans. of Prikladnaya Matematika i Mekhanika  
(USSR) 1952, v. 16, no. 1, p. 116-118.

1. Fluid flow--Physical factors
2. Effects--Hydrodynamic characteristics
- I. Gurevich, M. I.
- II. RIS S-2104
- III. Research Information Service, New York

TOP SECRET

Office of Technical Services

(Mechanics--Hydrodynamics, TT, v. 5, no. 11)

<p>CAVITATION PROBLEMS: TRANSLATION OF THREE RUSSIAN PAPERS, tr. by Gerta Cohen and Hirsh Cohen. 3 Apr 59 [28]p. 15 refs. RPI Math Trans. no. 3. Order from OTS or SLA \$2.60</p> <p>Trans. of <u>Prikladnaya Matematika i Mekhanika (USSR)</u> 1952, v. 16, no. 1, p. 116-[118]; #1958, v. 22, no. 4, p. 565-568; <u>Akademiya Nauk SSSR. Doklady</u>, 1956, v. 111, no. 2, p. 312-[315].</p> <p><u>Each article is available separately elsewhere.</u></p> <p>DESCRIPTORS: *Cavitation, Fluid flow, Sheets, Hydrodynamics, Impact shock, Subsonic flow, Mathematical analysis.</p> <p>Contents: The impact on a lamina with discontinuous streamline flow, by M. I. Gurevich (Mechanics--Hydrodynamics, TT, v. 7, no. 12)(over)</p>	<p>59-14913</p> <p>I. RPI Math Trans-3 II. Rensselaer Polytechnic Inst., Troy, N. Y.</p> <p>AEC-SCL-7-65-2 6 9</p> <p>Office of Technical Services</p>
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Stresses and Strains in Cyclical Loading, by  
G Yu. N. Rabotnov, 5 pp. UNCLASSIFIED

RUSSIAN, per, Prik Matemat i Mek, Vol XVI, No 1,  
1952, pp 121-122.

Sci Mu Lib No 54/2231

Scientific - MATHEMATICS  
ENGINEERING

18,613

The Problem of a Submerged Jet, by Yu. B. Rumer.

Full translation.

RUSSIAN, bimo per, Prikl Matemat i Mekh, Vol XVI,  
USSR, 1952, pp 255-256.

AEC Tr 1632

TT.383

Scientific - Mathematics

Aug 53 CTS

4824

On the Applicability of the Method of Variables  
to Problems of Small Plastic-Elastic Deformations,  
by V. N. Panferov

RUSSIAN, Prik Mat i Mek, 1952, Vol XVI, No 3,  
pp 319-322.

HT2387  
D.S.I.R. Tr No CTS 2

Scientific - Mathematics

List No 49, Apr 1953

1073

Theoretical Approach to the Determination of  
Added Mass of a Rectangular Plate, by K. K.  
Fyedyayevskiy

RUSSIAN, per, Prik Mat i Mekh, Vol XVI, 1952,  
pp 352-352.

A.R.E. Fort Halstead 7 OT/491

Scientific - Mathematics

CTS/DEK

5

8231

Malkin, L. G.

ON A PROBLEM IN THE STABILITY THEORY OF  
AUTOMATIC REGULATING SYSTEMS. [1961] [9p].  
3 refs.

Order from OTS or SLA \$1.10

62-10146

Trans. of Prikladnaya Matematika i Mekhanika  
(USSR) 1952, v. 16, p. 365-368.

Another trans. is available from OTS \$1.10 as  
AD-264 067, July 61. 9p.

DESCRIPTORS: \*Control systems, \*Linear systems,  
Functions, Theory, Differential equations, Integral  
equations, Perturbation theory.

This paper is concerned with the problem proposed  
by Aizerman in regard to the stability of a set of non-  
linear differential equations. Conditions for stability  
are hypothesized by making a linear analogy to the  
original non-linear system. The validity of these  
(Mathematics, TT, v. 7, no. 9)

(over)

62-10146

1. Title: Lyapunov method  
1. Malkin, I. G.

Office of Technical Services

Analytical Theory of Non-Linear Systems of  
Ordinary Differential Equations, by N. P. Erugin

RUSSIAN, per, Prik Mat i Mekh, Vol XVI, No 4,  
1952, pp 465-486.

Co-op Tr Sch 36  
Sci Mus Lib 55/2647

Scientific - Mathematics  
CTS/DEX

Price 8.16s.(1.2s.)

5558

Malkin, I. G.

THE STABILITY OF AUTOMATIC REGULATION SYSTEMS (Ustoichivost' Sistem Avtomaticheskogo Regulirovaniya). Nov 60 [8]p. 1 ref. RTS 1698. Order from LC or SLA m\$1.80 ph\$1.80 61-15210

Trans. of Prikladnaya Matematika i Mekhanika (USSR) 1952, v. 16, no. 4, p. 495-499.

The stability problem of the system of type  $(dx_s/dt) = p_{s1}x_1 + \dots + p_{sn}x_n + F_s(x_1, \dots, x_n)$ , where  $s = 1, 2, \dots, n$ , is considered. For given conditions of  $F_s(x_1, \dots, x_n)$  these functions satisfy, in the region  $|x_s| \leq A_s$ , the inequalities  $|F_s(x_1, \dots, x_n)| \leq Q(|x_1| + \dots + |x_n|)$  where  $Q$  is a positive constant. The maximum values of this constant are found for which the equilibrium is asymptotically stable in the Lyapunov sense for any  $F_s$  function that satisfies the above conditions, and the permissible range of initial deviations are determined. A theorem in which these quantities are assessed is given: it is expressed directly in (Mathematics, TT, v. 5, no. 8) (over)

61-15210

1. Control systems-- Stability
2. Control systems-- Mathematical analysis
- I. Malkin, I. G.
- II. RTS-1698
- III. Department of Scientific and Industrial Research (Ost. Brit.)

151628

Office of Technical Services

The Calculation of Symmetrically Loaded Toroidal Shells With the Aid of Trigonometric Series,  
8 pp., by S. A. Tumarkyn

RUSSIAN, per, Prik Mat i Mekh, Vol XVI, No 5, 1952,  
pp 569-574.

Sci Mus Lib 53/1423

SLA 59-19140  
CIA/FOO X-5488

Scientific - Mathematics  
CTS/DEX

5955

Calculation of Vortex-Free Flow Over Profile  
Lattices and the Construction of Lattices on the  
Basis of a Given Velocity Distribution at the  
Profiles, by L. F. Dorfman, 18 pp.

RUSSIAN, per, Prik Matemat i Mekh, Vol XVI, 1952,  
pp 599-612. 9210852  
(LOAN) NLL Ref. 0578.9 1963 (1,328)  
A.C.S.I.L. Tr 1328

Sci - Math & Data Process  
Sep 63

344,182

A Study of Theories of Fracture Under Combined Stresses, by I. Cornet, R. C. Grassi; Physical Significance of Invariants of Stress Used in the Theory of Plasticity, by V. V. Novozhilov,  
45 pp.

RUSSIAN, per, Prik Matemat i Mekh, Vol XVI, 1952,  
pp 617-619.

AFC Tr NP-6712

Sci - Phys

75, 722

Sep 58

Stability of the Solution of a Certain Non-linear  
Third Order Equation, by E. A. Barbashin.

RUSSIAN, bimo per. Erik Matemat i Mekh, Vol XVI,  
No 5, 1952, pp 629-632.

Co-op Tr Sch 57

USSR  
Scientific - Mathematics

Feb 54 CTS

£1.12s. (4s. Od.)

9602

<p>Beilin, E. A. and Dzhanelidze, G. Yu. A SURVEY OF WRITINGS ON THE DYNAMIC STABILITY OF ELASTIC BODIES (Obzor Rabot po Dinamicheskoi Ustoichivosti Uprugikh Sistem). [1963] 44p 41refs Order from OTS, SLA, or ETC \$4.60 TT-64-14269</p> <p>Trans. of Prikladnaya Matematika i Mekhanika (USSR) 1952, v. 16 [no. 5] p. 635-648. (Abstract available) Another trans. is available from OTS \$3.60 as AD-269 945, 15 Nov 61, 32p.</p> <p>DESCRIPTORS: *Elasticity, *Solids, Dynamics, Stability, Load distribution, Motion, Mathematical analysis, Partial differential equations, Theory, Reviews, Mechanics.</p> <p>A survey of work published in the USSR on the problem of dynamic stability of elastic systems during the period 1924-1951 is presented. The paper is divided into three (Mechanics, TT, v. 11, no. 7) (over)</p>	<p>TT-64-14269</p> <p>I. Beilin, E. A. II. Dzhanelidze, G. Yu.</p> <p>Office of Technical Services</p>
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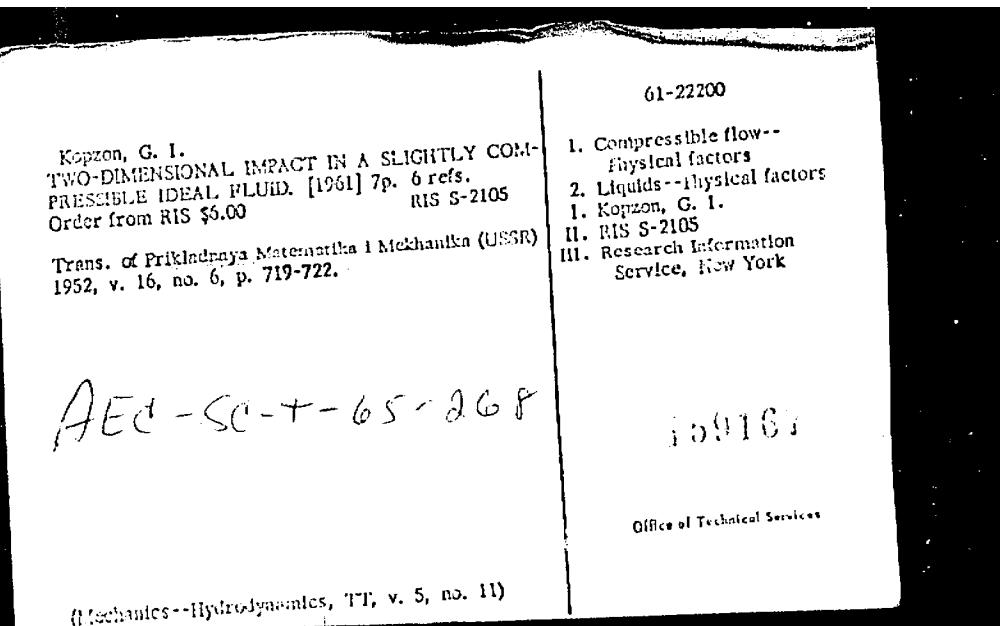
Strength of a Rapidly Rotating ~~Ex~~ Cylinder, by  
M. Sh. Mikeladze, 11 pp.

RUSSIAN, per, Prik Mat i Mekh, Vol XVI, 1952,  
pp 706-710.

CIA/FDD X-4034  
AFC-tr- 4041

Sci - Ingr  
Jan 60

105,852



The Propagation of a Whirling Jet in an Infinite  
Space Filled With the Same Fluid, by  
L. G. Loytayanskiy,

RUSSIAN, per, Prik Mat Mekh, Vol XVII, No 1,  
1953, pp 3-16.

ATS-22L29R

TPA3/TIB Tr No 436

ATS RJ-1965 8

21831

Scientific - Physics Mar 55 CTS

Canonical Transformations of Equations of the  
Theory of Automatic Controls, by V. A. Troitskii,  
14 pp.  
RUSSIAN, per, Prikladnaya Matematika i Mekhanika, Vol 17,  
1953, pp 49-60.  
ARM/RSIC-Tr-961-69

Sci/Math  
Jul 70

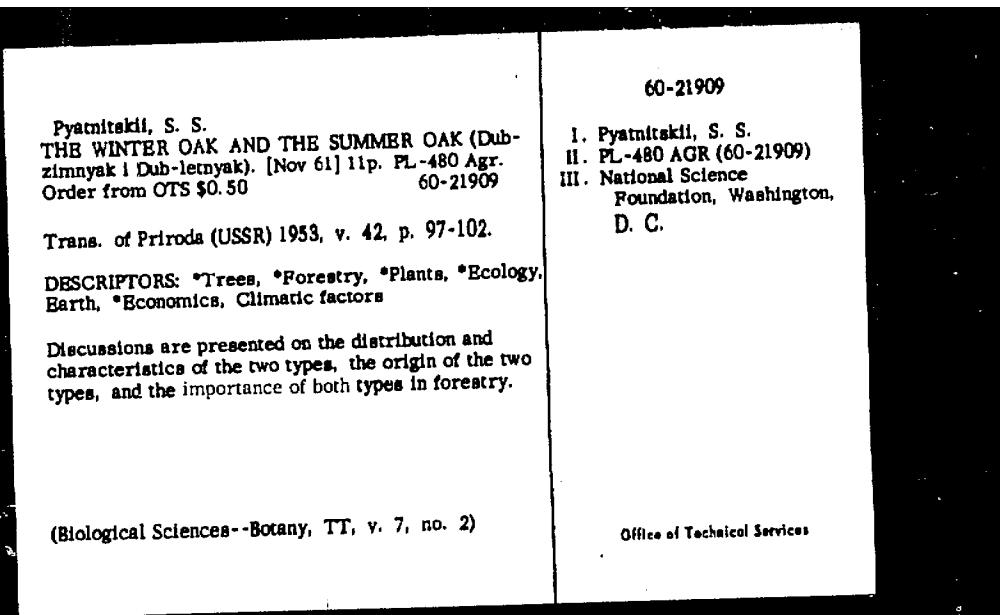
A Method of Solution of a General Biharmonic Problem for a Rectangular Region, With Given Values of the Function and Its Normal Derivative on the Contour, by G. A. Grinberg, et al.

RUSSIAN, per, Prik Matemat i Mekh, Vol XVII,  
1953, pp 73-86.

DSIR LRU M.1492  
(loan) 128, 829

Sci - Phys

Oct 60



Elastic Equilibrium of an Elliptical Ring, by  
M. P. Sheremet'yev. UMCL

RUSSIAN, per, Prik Mat i Mekh, No 17, 1953,  
pp 107-113.

British Iron and Steel Ind  
(no number given)

Sci - Math  
Sep 59

98,385

The Oscillations of a Floating Form on the Surface  
of a Heavy Fluid, by W. D. Baskind. UNCLASSIFIED

RUSSIAN, per, Frik Materal i Mekh, Vol XVII, 1953,  
pp 165-170.

Navy 2127/T-283

DTMB

Sci - Phys  
May 59

86,474

Estimation of Errors in the Approximate Solution  
of Linear Problems, by M. G. Slobodyanskiy, 23 pp.

RUSSIAN, bimo per, Priklad Matemat i Mekh,  
Vol XVII, No 2, Mar/Apr 1953, pp 229-244.

NACA N-37596

Scientific - Mathematics  
CTS 73/Oct 1955

27,168

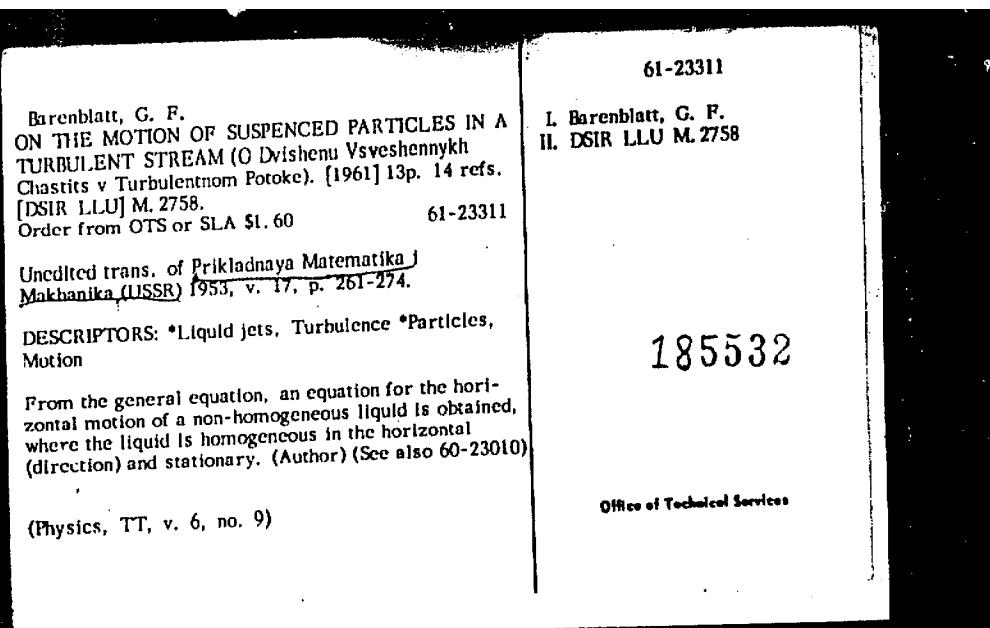
Integral Equations of Constrained Torsion and Stability  
of Thin-walled Rods, by V. V. Bolotin, 7 pp.

RUSSIAN, bimo per, Prik Matemat i Mekh, Vol XVII, No 2,  
Mar-Apr 1953, p 245-248.

NACA - N-37217

USSR  
Sci - ~~Associates~~ ENGINEERING

25,810



<p>Shimanov, S. N. ON THE STABILITY OF THE SOLUTION OF A NONLINEAR EQUATION OF THE THIRD ORDER. [1961] [10]p. 4 refs. Order from OTS or SLA \$1.10      62-10181</p> <p>Trans. of <i>Prikladnaya Matematika i Mekhanika (USSR)</i> 1953, v. 17, no. 3, p. 369-372. Another trans. is available from OTS \$1.10 as AD-264 174. STL-TR-61-5110-2, Mar 61, 10p.</p> <p>DESCRIPTORS: *Satellite vehicle trajectories, *Non-linear differential equations, Functions, Statistical tests, *Perturbation theory, Nonlinear systems.</p> <p>The stability is investigated of the null solution of a system characterized by the third-order nonlinear differential equation <math>\ddot{x} + f(x, \dot{x})\dot{x} + h\dot{x} + cx = 0</math>, (1) which is equivalent to <math>\dot{x} = y</math>, <math>y = z</math>, and <math>\dot{z} = -f(x, y)z</math> (<i>Mathematics, TT</i>, v. 8, no. 9)      (over)</p>	<p>62-10181</p> <p>I. Shimanov, S. N. II. STL-TR-61-5110-2 III. Periodical: <i>Prikladnaya Matematika i Mekhanika (USSR)</i> 1953, v. 17</p> <p>Office of Technical Services</p>
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Numerical Solution of a System of Differential  
Equations Application of the Method to the Calcula-  
tion of a Rotation Shell, by M. Sh. Mikeladze.  
9 pp.

RUSSIAN, per, Prikladnaya Matematika i Mekhanika,  
Vol 17, No 3, 1953, pp 382-386. 9700439  
FTD-TT-65-1439

Sci/Math  
Jun 66

302,534

A. M. Lyapunov's Method and Problems in Stability  
in Large, by N. P. Yerugin, 14 pp.  
RUSSIAN, por, Priklad Matem i Mekh, Vol XVII, No 4,  
1953, pp 389-400. 9697594

DDC ~~RSSC~~-434

PSIC

Sci - Phys

Aug 65

287,269

Stability of Control Systems with two Active  
Elements, by A. M. Letov.  
RUSSIAN, per, Prikladnaya Matematika i Mekh,  
Vol 17, No 4, 1953, pp 401-410.  
NAVY/APL/JHU-T-2570

Nov 71

On the Question of the Calculation of the Motion of a  
Gas in a Local Shock-free Supersonic Zone, by  
L. B. Goroshchenko, 5 pp. UNCLASSIFIED

USSIAN, per, Prik Mat i Mek, Vol XVII, 1953,  
pp 432-430.

Sci Mu Lib 54/1692 1692

Scientific - Physics, Mathematics

17,729

On Propagation of Instantaneous Excitations in a Medium With a Nonlinear Dependence of Tensions on Deformations, by G. I. Barenblatt, 13 pp.

RUSSIAN, per, Prik Mat i Mekh, Vol XVII, 1953,  
pp 455-460. 9216106

AEC-UCHL-TR-989(L)

Sci - Nucl Sci  
Jan 64

246, 460

Some Problems of the Laminar Filtration of a Fluid  
in Heterogeneous Twisted Layers of Variable Thick-  
ness, by O. V. Golubeva, 7 pp.

RUSSIAN, per, Prik Matemat i Mekh, Vol XVII, 1953,  
pp 485-490.

Sci Tr Center  
RT-1488

Scientific - Mathematics

CTS/DEX

18,749

On Free Thermal Convection in Vertical Cylinders of  
Arbitrary Section, by G. A. Bugaenko, 5 pp.

RUSSIAN, per, Upr Matemat i Mekh, Vol XVII,  
1953, pp 496-500.

Sci Mus Lib No 54/1113

Scientific - Mathematics

Jun 54 CTS

15,107

On the Determination of the Equilibrium States of a  
EXTERN Circular Shell Under Axially-Symmetric Loading,  
by N. A. Alumysye, 25 pp.

RUSSIAN, bimo per, Prik Matemat i Mekh, Vol XVII, No 5,  
1953, pp 517-528.

36,090  
Sci Tr Center RT-3647

Scientific - Physics

Jun 56/dex

Kamenkov, G. V. and Lebedev, A. A.  
ON STABILITY OF MOTION IN A FINITE TIME  
INTERVAL [AND] NOTES. [1963] [23]p. 6 refs.  
Free copies available from Boeing Scientific Research  
Labs. Library as Boeing Trans. R16 and R17. When  
supply is exhausted, order from OTS  
or SLA \$2.60 63-16987

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1953, v. 17, p. 529-540; 1954, v. 18, p. 512.

**DESCRIPTORS:** \*Motion, \*Stability, Time, \*Differential equations, Perturbation theory, Numerical analysis, Integrals, Real variables.

The solution of the problem of stability is reduced to an investigation of the integrals of the equations of perturbed motion of the type  $\frac{dx_1}{dt} = X_1, \dots, \frac{dx_n}{dt} = X_n$ ,  
 (Mechanics, TT, v. 10, no. 9) (over)

63-16987

- I. Kamenkov, G. V.
  - II. Lebedev, A.A.
  - III. Boeing Trans-R(16-17)
  - IV. Boeing Scientific Research  
Labs., Seattle, Wash.

**Office of Technical Services**

Blekh, Ye. L.

HORIZONTAL HYDRODYNAMIC IMPACT OF A  
SPHERE ON A FREE SURFACE OF A LIQUID.  
[1961] 15p. 7 refs.

Ordrsr from RIS \$20.00

RIS S-2106

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1983, v. 17, no. 5, p. 579-592.

61-22201

1. Spheres--Hydrodynamic characteristics
2. Liquids--Physical factors
- I. Blekh, Ye. L.
- II. RIS S-2106
- III. Research Information Service, New York

ED-SCL-T-65-250

104(7)

Office of Technical Services

(Mechanics--Hydrodynamics, T.R., v. 5, no. 11)

Cavity Flow Past a Contour Performing Small  
Oscillations, by M. I. Gurevich, M. D. Khaskind,

RUSSIAN, per, Prik Matemat-Mehn, Vol XVII,  
1953, pp 599-603.

A/R.E. Ft Halstead  
Tr No 16, OT/1027

20,790

Scientific - Physics Dec 1954 CTS

calculation of the Profile of a Rotating Disc  
Under ~~Time~~ Creep Conditions, by A. G. Kostyuk.  
UNCL

RUSSIAN, per, Prik Mat Mekh, Vol XVII, 1953,  
pp 615-618.

DSIR Lending Library Unit M.40

Sci - Math  
Apr 59

83,916

The Behavior of Dynamic Systems and Systems of  
Automatic Control Having Several Control Organs  
Near the Boundary of a Region of Stability, by  
V. A. Troitskii, 14 pp.  
RUSSIAN, per, Prik Matematicheskikh Nauk, Vol 17, 1953,  
pp 673-684.  
ARM/RSIC-Tr-968-69

Sci/Math  
Jul 70

Blokh, Ye. L.  
HORIZONTAL IMPACT OF AN ELLIPSOID OF ROTATION ON AN IDEAL LIQUID HAVING A FREE SURFACE. [1961] 24p. 6 refs.  
Order from RIS \$25.00 RIS S-2107

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1953, v. 17, no. 6, p. 705-726.

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1953, v. 17, no. 6, p. 705-726.

61-22202

1. Ellipsoids--Hydrodynamic characteristics
2. Liquids--Physical factors
  - I. Blokh, Ye. L.
  - II. RIS S-2107
- III. Research Information Service, New York

AEC-SCL-T-65-251

(Mechanics-Hydrodynamics, TT, v. 5, no. 11)

**Office of Technical Services**

Conventional Diffusion in a Submerged Jet, by Y. B.  
Rumer, 6 pp.

RUSSIAN, per, Priklad Mat i Mekh, Vol XVII, No 6,  
Nov/Dec 1953, pp 743, 744.

OTC TT-66 10/10/64  
SLA Tr R-III9 (1119)

Sci - Mathematics

54,601

Oct 57

The Determination of Large Deflections of a Cylindrical Panel, Resting on Flexible Inextensible Ribs, Subjected to External Normal Loading, by Kh. M. Mishtari, I. V. Svirski, 12 pp.

RUSSIAN, bimo per, Prik Matemat i Mekh., Vol XVII, № 6, 1953, pp 755-760.

Sci Tr Center FT-3646

36,128

Scientific - Engineering

Jun 56/dex

On the Problem of a Streamlined Profile  
in a Near-Sonic Flow, by A. F. Kryuchin.  
RUSSIAN, per, Prikladnaya Matematika i  
Mekhanika, Vol XVIII, 1954.  
OTS TT-64-71432

Jan 67

318,668

Wave Motions of a Heavy Liquid, by M. D.  
Khaskind, 16 pp.

*mat*  
RUSSIAN, per. Prik Mat. i Mekhanika, Vol XVIII,  
1954, pp 15-26.

CIA/FDD/ Z-202

30, 879

Scientific - Physics

<p>Feodos'ev, V. I. ON THE STABILITY OF A SPHERICAL SHELL, SUBJECTED TO THE ACTION OF EXTERNAL HYDROSTATIC PRESSURE [Neustanovivsheesya Dvizhenie Vyazkoi Zhidosti Sozdavannoe Vrashchayushchimaya Diskom] tr. by George Herrmann. Mar 56 [16]p. 7 refs. DTMB Trans-266. Order from OTS or SLA \$1.60                    63-15671  Trans. of <u>Prikladnaya Matematika i Mekhanika</u> (USSR) 1954, v. 18 [no. 1] p. 35-42. Another trans. is available from OTS or SLA \$1.10 as 62-23112, MDP P-104 [1961] 10p.  DESCRIPTORS: Elastic shells, Structural shells, Spheres, Stability, Pressure, *Hydrostatic pressure.</p>	<p>63-15671</p> <p>I. Title: <i>Spherical shells</i> I. Feodos'ev, V. I. II. DTMB Trans-266 III. David Taylor Model Basin, Washington, D. C.</p>
(Mechanics, TT, v. 9, no. 10)	Office of Technical Services

Duvakin, A. N. and Letov, A. M.  
ON THE STABILITY OF CONTROL SYSTEMS WITH  
TWO CONTROLLERS. [1961] [11]p. 4 refs.  
Order from OTS or SLA \$1.60

62-10185

Trans. of Prikladnaya Matematika i Mekhanika  
(USSR) 1954, v. 18, p. 163-166.  
Another trans. is available from OTS \$1.60 as  
AD-264 153, STL-TR-61-5110-17, May 61, 12p.

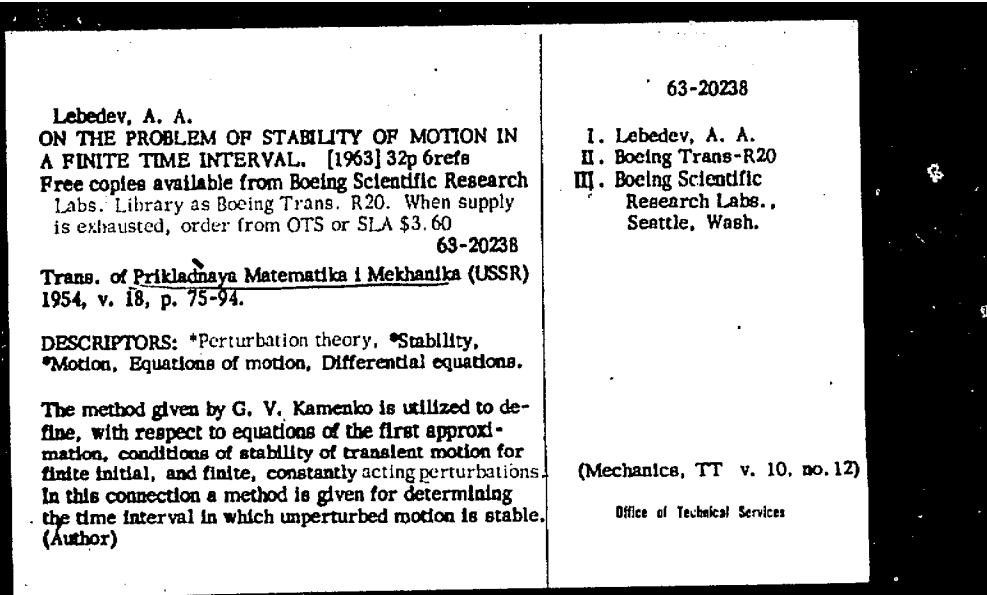
DESCRIPTORS: \*Control systems, Linear systems,  
\*Differential equations, Perturbation theory, \*Func-  
tions, Inequalities, Stability, Theory, Time, Motion.

An analysis is presented on the control system de-  
scribed by a differential equation. The problem is to  
determine the sufficient conditions for the asymptotic  
stability of the trivial solution of the control system  
for any finite initial perturbations. Details are given  
on the construction of the Lyapunov function. Results  
(Mathematica TT, v. 8, no. 10) (over)

62-10185

1. Title: Lyapunov functions
- I. Duvakin, A. N.
- II. Letov, A. M.

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Concerning the Invertibility of the Lyapunov's  
Theorem of Asymptotic Stability, by I. G. Malkin,  
13 p.  
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On the Analysis of Shells Subjected to Concentrated Loads, by A. L. Gol'denveizer, 13 pp.

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Steady Motion of a Fluid Heated From Below, by  
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pp 197-204.

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Application of the Galerkin Method to the Problem of the Stability of Unevenly Heated Liquids,  
by E. M. Zhukhovitskii, 15 pp.

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On Waves of Lodging and Unloading Arising From the Motion of an Elastic or Plastic Flexible Fibre,  
by N. Cristescu, 18 pp.

RUSSIAN, per, Prik Matemat i Mekhanika, Vol XVIII,  
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<p>Bugaenko, G. A. ON FREE CONVECTION IN AN INCLINED CYLINDER (O Svobodnoi Konvektsii v Neklonnom Tsilindre). July 61 [5]p. 2 refs. RTS 1884. Order from OTS or SLA \$1.10 61-27041  Trans. of Prikladnaya Matematika i Mekhanika (USSR) 1954, v. 18, no. 2, p. 212-214.  DESCRIPTORS: *Conical bodies, Continuous media, *Convection, Mathematical analysis, Heat transfer.  (Physics--Thermodynamics, TT, v. 7, no. 2)</p>	<p>61-27041 I. Bugaenko, G. A. II. RTS-1884 III. Department of Scientific and Industrial Research (Gr. Brit.)  Office of Technical Services</p>
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On the Question of Constructing Approximate Theories  
of Computation of Shallow Cylindrical Shells, by  
S. A. Ambartsumian, 11 pp.  
RUSSIAN, per, Prikl Mat i Mekh, Vol XIX, 1954,  
pp 303-312.  
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TT-64-18556

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<p>Barbashin, E. A. and Krasovskii, N. N. ON THE EXISTENCE OF LYAPUNOV FUNCTIONS IN THE CASE OF ASYMPTOTIC STABILITY IN THE LARGE. [1961] [13]p. 5 refs. Order from OTS or SLA \$1.60      62-10184</p> <p>Trans. of Prikladnaya Matematika i Mekhanika (USSR) 1954, v. 18, p. 345-350. Another trans. is available from OTS \$1.60 as AD- AD-264 150, STL-TR-61-5110-20, May 61, 12p.</p> <p>DESCRIPTORS: Satellite vehicle trajectories, *Flight paths, *Spheres, *Stability, Motion, Functions, Per- turbation theory, Differential equations, Partial dif- ferential equations</p> <p>Definitions on stability are given among which is in- cluded a detailed definition of stability in the large of two systems with time delay. Two theorems are stated with detailed proofs for solution of these systems. (Mathematics, TT, v. 8, no. 9)      (over)</p>	<p>62-10184</p> <p>I. Title: Lyapunov functions I. Barbashin, E. A. II. Krasovskii, N. N.</p> <p>Office of Technical Services</p>
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Unsteady Motion of a Viscous Fluid Created by a  
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Bulakh, B. M.  
ON THE THEORY OF CONICAL FLOWS. [1963] 5p.  
1 ref.  
Free copies available from Boeing Scientific Research  
Labs. Library as Boeing Trans. R74. When supply is  
exhausted, order from OTS or SLA \$1.10, 63-18316

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1954, v. 18, no. 4, p. 452-453.

DESCRIPTORS: Gas flow, Velocity, Numerical analysis,  
\*Conical bodies, \*Supersonic flow, \*Axially symmetric  
flow.

(Mechanics--Aerodynamics, TT, v. 10, no. 8)

I. Bulakh, B. M.  
II. Boeing Trans-R74  
III. Boeing Scientific Research  
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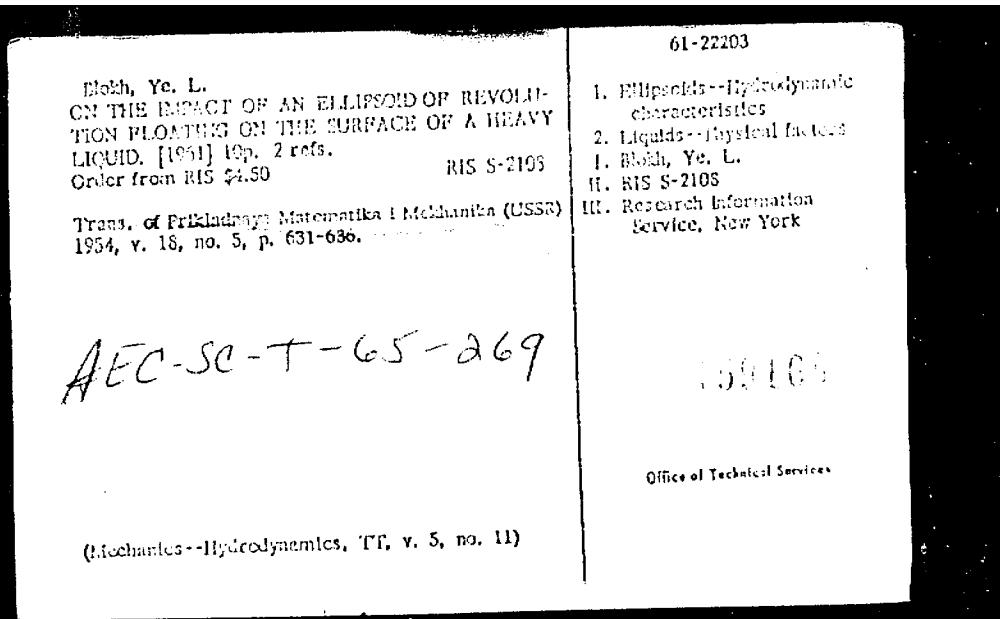
Problem of Near Sonic Flow Past a Profile, by A. F.  
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Stability of Cylindrical and Conical Shells of  
Circular Cross Section, With Simultaneous Action  
of Axial Compression and External Normal Pressure,  
by Kh. M. Mushtari, A. V. Sachenkov, 15 pp.

RUSSIAN, per, Prik Matemat i Mekh, Vol XVIII, No 6,  
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9 pp.

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Vol XVIII, 1954, p 729. 732

No 6, Morris D. Friedman K-108  
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Concerning Stability of One Gyroscopic System,  
by I. Z. Pirogov.

RUSSIAN, per, Prikladnaya Matematika i  
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\*ERDL Ft Belvoir  
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Sci - Engr

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RUSSIAN, per, Prikladnaya Matematika  
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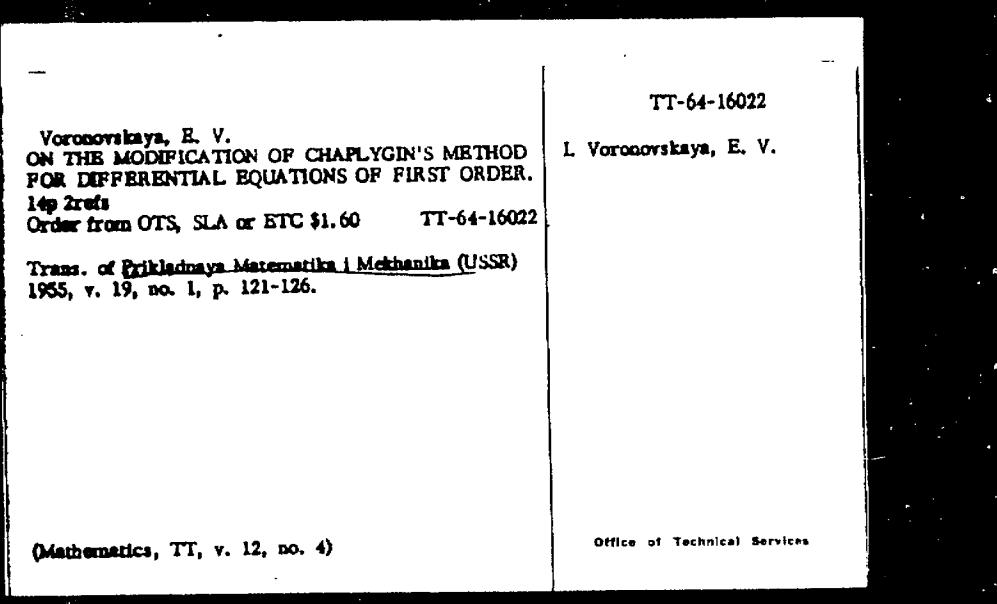
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by V. V. Sokolovskiy, 21 pp.

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XIX, 1955, pp 41-54.

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Sci - Mathematics, 36, 388

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<p>Zubov, V. I. QUESTIONS IN THE THEORY OF LYAPUNOV'S SECOND METHOD: THE CONSTRUCTION OF THE GENERAL SOLUTION IN THE DOMAIN OF ASYMP- TIC STABILITY. Aug 62 [47]p. 8 refs. Order from OTS or SLA \$4.60 62-20253</p> <p>Trans. of Prikladnaya Matematika i Mekhanika (USSR) 1955, v. 19 [no. 2] p. 179-210.</p> <p>DESCRIPTORS: *Control systems, *Stability, Motion, Equations of motion, Differential equations, Real variables, Functions, Series.</p> <p>This paper is the best source for "Zubov's Method", for constructing Lyapunov functions. It answers almost all theoretical questions concerning the concept of asymptotic stability. (Author)</p> <p>(Engineering--Electronic, TT, v. 9, no. 11)</p>	<p>62-20253</p> <p>1. Title: Lyapunov method 2. Title: Zubov's method I. Zubov, V. I. II. Lyapunov, A. M. III. Title: Construction ...</p> <p>Office of Technical Services</p>
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Method of Determining Conditions for the Existence  
of Periodic Solutions for Non-Linear Systems, by  
S.N. Shimanov.

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T.I.L. T-4715

Sci - Physics

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On a Case of Pre-Critical State of Bending of a  
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Scientific - Engineering

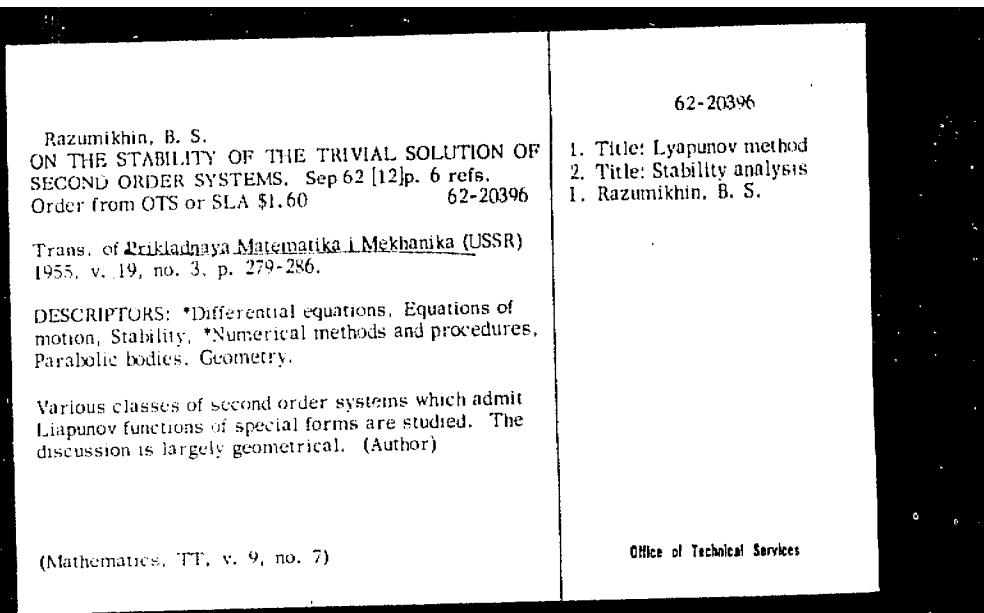
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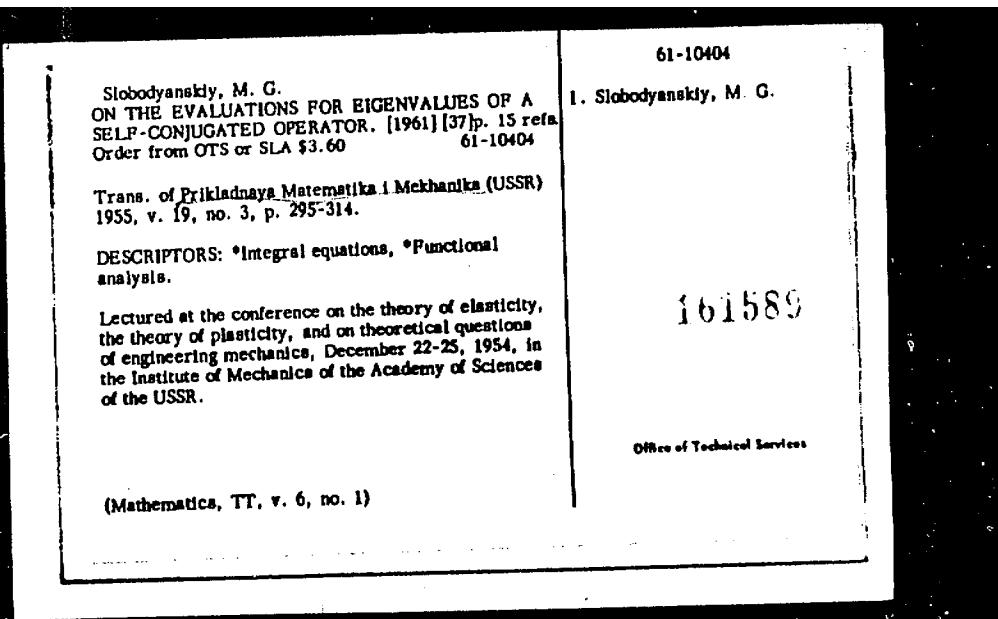
The Stability of Non-Steady Motions of Control  
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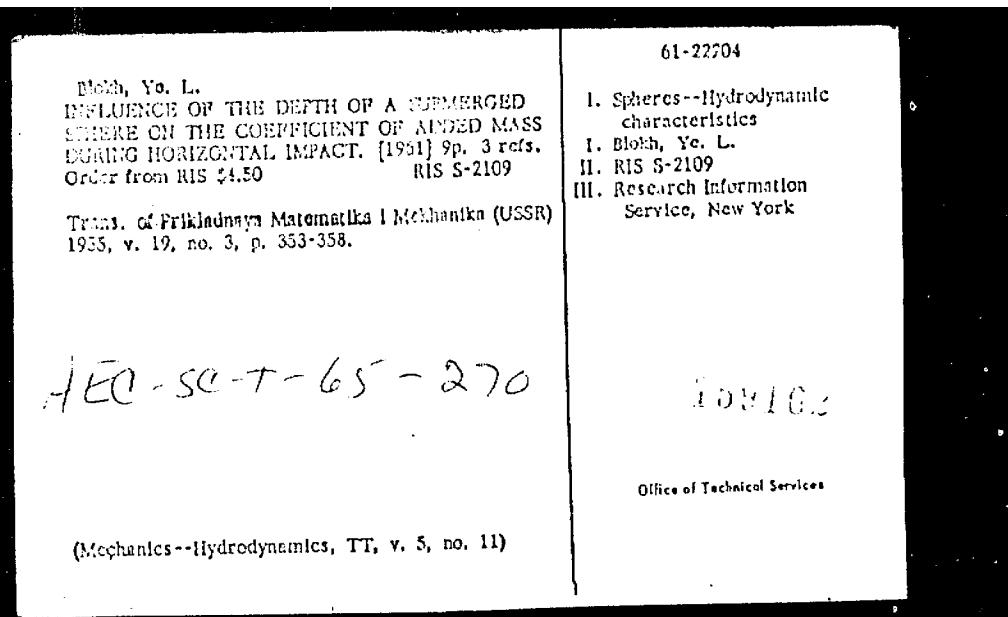
Various Forms of Flow Equations for Visco-plastic Fluids, and Law of Hydrodynamic Similarity,  
by A. F. Kasimov, A. Kh. Mirzadzhanzade, 9 pp.

RUSSIAN, per, Prik Mat i Mekh., Vol XIX, 1955,  
pp 348-352.

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Svirskiy, I. V.

ON THE QUESTION OF THE CONSTRUCTION OF  
VARIATIONAL CALCULATION METHODS. 1960 [26]p.  
1 ref.

Order from LC or SLA m1\$2.70, ph\$4.80 61-10402

Trans. of Prilki[adnaya] Matematika i Mekhanika]  
(USSR) 1955, v. 19, no. 4, p. 453-462.

Means are suggested for determining approximate  
solutions by means of Rayleigh procedures. The  
methods are illustrated by a number of examples.

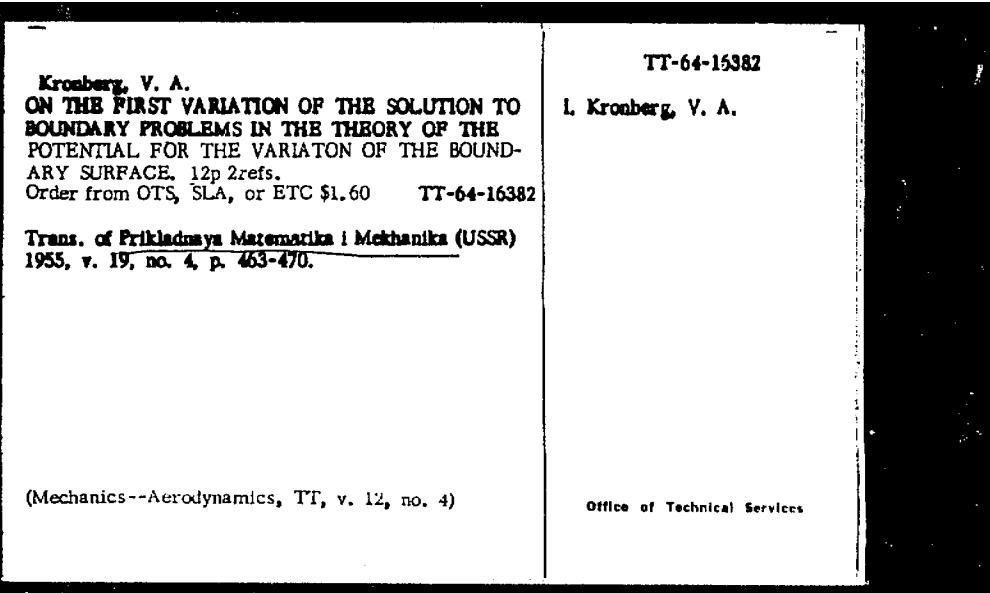
(Mathematics, TT, v. 5, no. 10)

61-10402

1. Approximate computation--  
Theory.
2. Title: Calculus of variations
3. Title: Rayleigh procedure
4. Svirskiy, I. V.

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An Application of Dorodnitsyn's Variables in  
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pp 507, 508.

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Some Special Solutions of the Boundary Layer  
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Dorfman, E. T. Shvets, 8 pp.

RUSSIAN, per, Prik Matemat i Mekh, Vol XIX, 1955,  
pp 509-512. CIA 9030257

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<p>Krasovskiy, N. N. ON THE STABILITY IN FIRST APPROXIMATION. [1961] [28]p. 11 refs. Order from LC or SLA m\$2.70, ph\$4.80 61-10773  Trans. of <u>Prikladnaya Matematika i Mekhanika</u> (USSR) 1955, v. 19, no. 5, p. 517-530.  The second method of A. M. Lyapunov is employed in studying the stability of solutions of perturbation equations.</p> <p style="text-align: center;">151852</p> <p>(Mathematics, TT, v. 5, no. 9)</p>	<p>61-10773</p> <p>I. Differential equations--     Theory 2. Perturbation theory I. Krasovskiy, N. N.</p> <p style="text-align: center;">Office of Technical Services</p>
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HYDRODYNAMIC THEORY OF A SPHERICAL BEARING (Gidrodinamicheskaya Teoriya Sferecheskogo Podshil'nika). [1961] [23]p. (Foreign text included)  
1 ref. [DSIR LLU] M. 2606.  
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Trans. of prikladnyaya Matematika i Mekhanika  
(USSR) 1955, v. 19 [no. 5] p. 531-540.

DESCRIPTORS: \*Bearings, Spheres, Lubrication,  
\*Hydrodynamics.

An approximate solution is presented of the problem of determination of pressure, force and moment acting on a spherical body which performs a general movement in a spherical space, filled with a viscous fluid. The velocity of translatory motion of the body and angular velocity of rotation are assumed to be known and con-

61-23272  
I. Loltyanskii, L. G.  
II. DSIR LLU M. 2606

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XIX Qualitative Methods in the Theory of Stability,  
by N. P. Erugin, 32 pp.

RUSSIAN, per, Prikladnaya Matematika i Mekhanika,  
Vol XIX, No 5, 1955, pp 599-616.

OTS 2-20394

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ON THE QUESTION OF STABILITY IN FIRST APPROXIMATION. 30 Dec 60 [5]p. 2 refs.  
Order from OTS or SLA \$1.10 61-14763

Trans. of Prikladnaya Matematika i Mekhanika (USSR)  
1955, v. 19, no. 5, p. 623-624.

DESCRIPTORS: Numerical analysis, \*Differential equations, Perturbation theory, Theory.

The author examines in a qualitative sense and presents a theorem relating solutions of the homogeneous first order variational equations to solutions of the non-homogeneous equations given on exponentially bounded stable solution of the homogeneous equations and certain assumptions on the nature of the non-homogeneous equations. (Translator)

(Mathematics, TT, v. 6, no. 1)

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